[From the Richmond and Louisville Medical Journal, May, 1869.]

Foreign Body in the Œsophagus:

Obstruction, Abscess, Œsophagotomy, Recovery.

By DONALD MACLEAN, M.D., L.R.C.S., Edinburgh,

Professor of Surgery and Clinical Surgery in the Louisville Medical College.

Cases are regarded as worthy a place in the annals of surgery, sometimes on account of extreme rarity as surgical curiosities, and sometimes on account of lessons of practical value which may be learned from them. In recording the following cases I am influenced by both of these considerations.

On the 18th of February, my colleague, Dr. Goodman, asked me to see E. R., a girl, æt. 23 months, who was supposed to have a piece of bone lodged in the œsophagus.

The history of the case, up to this date, is thus given by Dr. Goodman. On the 10th of February, Mr. R., the patient's father, called at Dr. Goodman's office, late at night, and stated that the child had, two days before, been eating mutton hash, when she suddenly became "choked till she was black in the face;" that the mother, becoming alarmed and excited, forced the mouth open and passed her finger as far as possible down the throat, where she felt what she supposes to have been a piece of bone similar to one that she had, on a previous occasion, succeeded in extracting, under similar circumstances, from the same child's throat. On the present occasion, however, she failed to seize the piece of bone, but felt it move downwards, beyond the reach of her finger; the child coughed violently for a few minutes and spat up a little

blood, and then appeared quite relieved, but refused to swallow anything but fluids, and had gradually become more and more restless and feverish, till the advice of Dr. Goodman was asked. An emetic was prescribed and administered, and early on the 11th, Dr. G. visited the case and found extensive bronchitis, with the usual amount of accompanying general indisposition. He examined the throat as carefully as possible, but could find no evidence of obstruction of any kind and concluded that the child's unwillingness to swallow solid food was caused by want of appetite and not by loss of the *power of deglutition*. The bronchitis gradually subsided under treatment, and in a few days the doctor's attendance seemed no longer necessary.

On the 16th, Dr. Goodman was again called and found well marked roseola, and noticed that there was some diffuse swelling of the neck, in the neighborhood of the thyroid cartilage, on both sides, but chiefly on the left; the patient carried her head on one side, the left, and carefully avoided all motion, especially lateral. There was now, also, total inability to swallow even fluids, although the little patient, evidently suffering very much from thirst, was never tired of making the attempt. Nutritive and stimulant enemata were prescribed, from which considerable benefit was derived.

On the 17th the symptoms continued, and in addition, her breathing became somewhat embarrassed, and on the morning of the 18th, I saw her with Dr. Goodman. By this time the roseola had disappeared, but otherwise her condition was unchanged, except that the swelling of the throat was greater and her breathing more embarrassed than when Dr. G. saw her on the previous evening.

The pulse was too rapid and feeble to be counted, the skin hot and dry, the tongue furred, the face livid

and bearing an expression of restless anxiety, the breathing very much oppressed and accompanied by a loud whistling sound, suggestive of œdema glottidis, which, however, did not exist. The swelling of the neck was very difficult to define, owing, partly to its depth and partly to the compression by the larynx and neighboring muscles. Moreover, the child, who was very small of her age, had a remarkably short, thick and fat neck. At this and several subsequent visits paid during the day, the most careful manipulation failed to determine, positively, whether suppuration had actually occurred, or to afford any precise information as to the condition of the deep structures.

On questioning the mother during my first visit, she informed us, that, while endeavoring to swallow one of the doses prescribed by Dr. Goodman for the bronchitis, the child had "coughed up a small splinter of wood."

During the day hot, soothing applications to the surface and inhalations by the atomizer were sedulously employed with the effect of affording a slight degree of temporary relief. Towards evening, however, I was sent for in a great hurry and informed that death, by strangulation, seemed imminent. It was now quite evident that there was but one resource left, viz: operation, and that there was no time to be lost. I proposed to cut right down through the swelling, partly with the hope of discovering and extracting a foreign body, but mainly with the confident expectation that a deep-seated abscess would be evacuated, and immediate relief afforded to the function of respiration.

In this proposal Dr. Henry Miller, also Drs. Satterwhite and Goodman, acquiesced, and I immediately proceeded to carry it into execution, not, I must admit, without feeling deeply that my position was one of more than ordinary responsibility. The age and exhausted condition of

the patient, the unsatisfactory history, the indefinite character of the swelling, and the obscurity of the ordinary anatomical landmarks produced thereby, the close proximity of important anatomical structures, injury to which would in any case be disastrous, and in this inevitably and instantaneously fatal, all these circumstances combined to render the operation one of extreme difficulty and danger.

Chloroform having been administered with the utmost caution by Dr. Goodman, I made an incision on the left side along the anterior margin of the sterno-mastoid muscle, extending from the level of the upper border of the thyroid cartilage down to a point opposite the lower border of the cricoids, I cut at once through the skin, platysma and fascia, pressed upwards the omo-hyoid muscle, divided the fibres of the sterno-hyoid and sterno-thyroid muscles; with the forefinger of my left hand pressed the carotid artery outwards as far as possible, and on the point of the same finger guided the knife downwards, inwards, and backwards, to ~~be~~ the projecting wall of the œsophagus, ~~and~~ from which, on the application of the edge of the knife to it, I hoped to witness a discharge of pus; nor was this hope disappointed. The instant the opening was made there was a loud gurgling eructation of gas and an increased flow of blood from the wound, and the next moment all present became painfully sensible of a stench of the most penetrating character, and this was immediately followed by the discharge from the wound of about two table-spoonfuls of dark, grumous, fœtid pus. I then introduced my finger into the wound and right into the interior of the œsophagus, but could not discover a foreign body of any kind; convinced, however, that the main object of the operation had been attained, and that, in case a foreign body was present, a more favorable opportunity of exploring for it would be afforded subsequently, we gladly desisted from further manipulation, and permitted nature to restore consciousness without interference of any kind. No vessels required to be tied. The result was precisely what we had anxiously anticipated; the breathing became quite natural, the whistling sound (produced no doubt by compression of the windpipe) entirely ceased, and when consciousness returned it was found that the function of deglutition was fully restored. The little sufferer was now able to enjoy a copious drink of milk, although with every act of deglutition a small quantity was discharged by the wound.

19th—Morning. Slept very well; wound discharging copiously; drinks freely, but refuses solid food; can't speak above a whisper; bronchitis lighted up again, and is pretty general in both lungs; pulse very rapid, but stronger than yesterday. Ordered beef tea, an expectorant mixture, poultices to neck, and counter-irritation (mustard) to chest. Evening—Breathing suddenly much embarrassed; high fever; countenance livid; pulse extremely small and rapid; discharge from wound almost entirely arrested. On passing a probe into the wound it was found that a valvular closure had been formed, probably by the contraction of the neighboring muscular structures; the introduction of the probe was followed by a gush of healthy pus, and instantaneous relief of the urgent symptoms. A pledget of lint was then inserted to prevent the recurrence of this accident, and was replaced at each dressing for the next few days. After this date everything went on well, the discharge poured away very freely for some days, and then gradually diminished in quantity, and the wound closed up from the bottom, of its own accord, after having been probed in all directions on several occasions, but without result so far as any foreign body is concerned; the bronchitis slowly subsided, the voice returned, and now, March 10, the child is quite well.

Commentary.—On reference to the annals of surgery, it will be found that the cases of œsophagotomy are extremely rare, while those of great distress, and even death from the impaction of foreign bodies in the œsophagus, are comparatively frequent. These facts considered in connection with the brief and indefinite opinions expressed regarding it, and the air of difficulty and even impracticability thrown around the whole subject by many high authorities, induces the conviction that it is one which has not received the attention which its importance entitles it to.

In a recently published monograph, Dr. David W. Cheever, of Boston, details the history of three cases of œsophagotomy in his own practice, and gives a somewhat comprehensive review of the literature of the subject, quoting the opinions and experiences of numerous surgical authorities as Syme, Velpeau, Nelaton, Ferguson, Hevin, Gualtani, Begin, Martini, De Lavacherie, Arnott, Cock, Demarquay and Gross, with the following table of cases, to which is added the one described above. We must, however, confess to a doubt as to the correctness of

this table; some of the cases appear hardly entitled to be classed under the head of œsophagotomy. Nevertheless the table is a valuable and interesting one. Of the 22 cases it will be observed that 18 terminated in recovery. Of those in which the age of the patient is given, Dr. Arnott's fatal case is the youngest, (viz: $2\frac{1}{2}$ years), except the one here described. In fact, I think we are justified in assuming that all the patients, except these two, were adults, and there can be no doubt that the difficulty and danger of the operation is in inverse proportion to the size and age of the patient.

Owing to the length to which this paper has already extended, we can only find space for the following brief summary of Dr. Cheever's views:

"In view of all these perils why thould not œsophagotomy be the rule, after reasonable attempts at extraction have failed, just as an operation is the rule in strangulated hernia, after reasonable attempts at taxis have failed?

"We only lose by delay. The experiments of Demarquay have proved that suppuration is imminent if we wait longer than the third or fourth day." In the whole twenty-two cases we find only four deaths, or less than twenty per cent. "And in every one of these, death was due to secondary complications; due either to delay, or to overtreatment in attempts at extraction. In one, there was pneumonia; in two, gangrene; in the remaining one, abscess. No projection externally of the foreign body need be waited for, or expected. As to the manner of the operation, we have given our reasons for the lateral method, which, indeed, is favored by most writers. We need not remind the anatomist, that the nerves are very constant in their distribution, and can all be avoided. And if anomalies of arteries are feared, there is but one of much consequence, and that very rare, namely, the origin of the right subclavian from the arch of the aorta, in which case it crosses behind the œsophagus.

"In comparison with the perils of expectant treatment in surgery, we are almost ready to say, that no dangers from the knife, in an educated hand, can equal those of delay."

We have no hesitation in indorsing the practical conclusions, to which Dr. Cheever has arrived as the result of actual experience and careful consideration of the subject, and we believe these views receive additional strength from the case here recorded.

Table of Cases of Œsophagotomy.

No.	Date	Sex	Nature of Foreign Body.	Point of Impaction.	Treatment before Operation.	Operation, when Performed.	Result.	Cause of Death.	Operator.
1	1738	M	Portion of bone one inch long, six lines broad.	Œsophagus; where, not stated; could be felt outside.	Attempts to push it down.	Not stated.	Recovered.		Goursauld.
2	No date.		Probably a portion of bone.	Not stated.	Not stated.	Not stated.	Recovered.		Roland.
3	1831	M	Portion of beef bone.	Œsophagus; lower part of the neck.	Touched the foreign body; attempts to dislodge it.	Operation twelfth day, left side.	Speedy recovery.		Begin.
4	1832	M	Large conical fragment of bone.	Œsophagus; lower part of the neck.	Touched the body; every means tried to dislodge it.	Operation eighth day —left side.	Recovered.		Begin.
5	1833		Spinous process of dorsal vertebra of a sheep.	Lower part of pharynx.	Emetics and various attempts to dislodge it.	Operation after five weeks, on right side.	Death fifty-six hours after operation.	Pneumonia, existing at time of operation.	Arnott.
6	1842	M	Not stated.	Œsophagus — perforation of; lying on carotid.	Not stated.	Operation eighth day	Recovered.		De Lavacherie
7	1844	M	Portion of bone.	Could be felt outside, projecting above clavicle.	Bleeding, tartar emetics in veins, belladonna enemata, and sixty attempts with instruments.	Operation fourth day —bone swallowed.	Death two days after operation.	Collapse, pharynx gangrenous, stomach inflamed.	Martini.
8	1853	M	Small fish.	Pharynx; tail seen in fauces.	Vain attempts to withdraw through mouth.	Operation after several days.	Recovery in six weeks.		Antoniesz.
9	1853	M	Fragment of beef bone.	Œsophagus; in neck.	Attempts at extraction.	Operation ninth day.	Death second day after option.	Perforation front and behind. Retro-phar. abscess reach. stom.	Flaubert.
10	1854	F	One franc piece.	Upper part of œsophagus.	Repeated efforts at extraction with Graefe's sound and forceps.	Operation tenth day.	Death the third day after operation.	Retro-œsophageal abscess opening into pleura.	Demarquay.
11	1855		Portion of bone.	Œsophagus; abscess formed.	Could not be reached by fauces.	Operation sixteenth day.	Recovery in two weeks.		Syme.
12	1856	M	Gold tooth-plate containing a false incisor.	Junction of pharynx and œsophagus. No external projection.	Attempts at withdrawal with forceps; emetics.	Operation the fourth day, left side.	Recovery in 4 weeks; permanent alteration of voice		Cock.
13	1861		Thin piece of mutton bone 1 inch square.	Œsophagus; no external projection.	Could not be touched by fauces.	Operation sixth day.	Recovery in two weeks.		Syme.

14	1862		A coin.	Opposite top of sternum.	Coin touched by bougie.	Operation after two months.	Recovery; swallowed in a week.		Syme.
15	1863	M	Bone.	Not stated.	Not stated.	Not stated.	Recovered.		Fourier.
16	1864	T	Peach stone.	Not stated.	Not stated.	Not stated.	Recovered.		Arnold.
17	1866	M	Codfish bone.	Junction of pharynx and œsophagus. No projection.	Vomiting; exploration by finger and probang; rigors.	Operation third day, right side.	Recovered.		Cheever.
18	1866	M	Brass pin.	Below top of sternum. No projection.	Vomiting; long probang.	Operation third day, left side.	Recovery in 5 weeks.		Cheever.
19	1867	M	Tooth-plate.	Opposite left cricoid.	Various explorations.	Operation third day.	Recovered.		Cock.
20	1867	F	Brass pin.	Apparently opposite left cricoid.	Attempts during 4 months.	Operation after four months.	Recovered.		Hitchcock.
21	1868	F	Supposed to be a pin.	Junction of pharynx and œsophagus.	Various attempts.	Operation after eight months.	Recovered.		Cheever.
22	1869	F	Supposed to be piece of mutton bone.	Opposite thyroid cartilage.	None, except one emetic.	On tenth day after accident.	Recovered.		Maclean.

Foreign bodies: Authentic cases, 22; deaths, 4; recoveries, 18.

NOTE. In cases 20 and 21 no foreign body was found. The lapse of time (four and eight months after the swallowing of the pins) may have favored their escape, or becoming encysted outside the œsophagus. For the severity of the symptoms, the reader is referred to the history of the cases.